

## A COMPACTLY TRANSPORTABLE ARTICLE OF FURNITURE

THIS INVENTION relates to an article of furniture and, more specifically is concerned with one which can be assembled and disassembled relatively easily, and stored and transported in a relatively compact form. The article of furniture may be designed as a  
5 couch or chaise lounge for adult use or as a play article for use by a child, or as a temporary bar counter.

### THE INVENTION

In accordance with the present invention an article of furniture comprises two rigid and upright side panels of similar external outline and held in a spaced relationship by  
10 disconnectable rigid members, each panel providing an under edge or surface for resting on a floor and an opposite edge or surface for supporting a respective marginal side-portion of a flexible platen of parallel elongated and relatively inflexible elements extending between opposite sides of the platen and held together by flexible ties enabling the platen to be rolled up to form a compact transportable assembly with the side panels  
15 and the disconnected rigid members during transportation and to be unrolled to cover said opposite edges or surfaces of the side panels after attachment of the rigid members to provide an upper or frontal surface to the article. The invention includes a kit of parts from which the article of furniture may be assembled.

### PREFERRED FEATURES OF THE INVENTION

20 Preferably each of the under edges of the panels has a similar convex shape to provide the article of furniture with rockers which allow it to be rocked gently back and forth. Rigid tubes may be used as the members to hold the panels in the required spatial relationship and quick-release connectors may be used to attach the members to the panels. Suitably holes provided in the panels in registration with the interiors of the  
25 tubes enable bars or rods to be inserted through the panels and the tubes so that their ends protrude from each side of the couch and enable suspension wires, chains, ropes or cords to be used to suspend the article above ground level so that it may be swung to and fro.

As a result of the convex shape of the under edges of the panels, the article only requires to be lifted off the ground through a minimum distance for ease of access and safety before it can be swung to and fro, without risk of the panels scraping on the ground.

Said opposite edges of the side panels may be provided with resiliently flexible and soft  
5 strips of a foamed plastics or rubbery material which yields readily in conjunction with the platen in response to the weight of a person's body resting comfortably on the platen. It also serves to locate the platen in a desired position on said opposite edges and it may have a section of its length gathered together.

The inflexible elements of the platen preferably comprise parallel bamboo rods which  
10 may be spaced from one another by intervening parallel and short tubular elements of a smaller diameter and which may also be made from bamboo. The elements may however take the form of solid rods, tubes or slats and may have their dimensions so selected that different elements of the platen have different resonant frequencies. They may thus be arranged along the platen to provide a musical scale.

15 In a preferred arrangement the opposed faces of the side panel suitably provide parallel tracks along which an axle may be reciprocated along the underside of the platen by a suitable drive mechanism. The axle may carry axially-spaced rollers or wheels which bear against the underside of an upwardly flexible part of the platen to lift its elongated elements slightly during reciprocation of the axle. The rollers or wheels have a  
20 sufficiently large diameter to produce this effect by moving individual elements of the platen upwardly as the axle passes beneath them during its reciprocation. This imparts a gentle, travelling, percussive, massaging action to a person resting on the platen. Conveniently two spaced parallel axles each carrying rollers or wheels are supported on a platform which can be reciprocated back and forth along the underside of the platen. The  
25 axles may be supported on the platform by shock-absorbing devices which provide each axle with independent vertical suspension. This assists movement of the platform beneath the slats.

As stated earlier, when the article of furniture is constructed as a child's plaything, the individual elements of the platen may be tuned to different frequencies so that a child can tap the elements with a hammer to create a tune and assist his or her understanding of how music is created. Foldable, and vertically resilient legs provided at their lower ends  
5 with wheels, may be located towards opposite end-portions of the side panels. These legs may form part of a mechanism which allows them to be moved between a stowage position at which they lie between the side panels and an operating position at which at least the lower portions of wheels protrude beneath the under-edges of the panels. The article may then be rolled along the ground on sprung wheels. However, if a pre-  
10 determined excessive load is placed on the platen, the legs may be arranged to yield against a spring bias, suitably provided by a coiled spring, to allow the article to rest on the under edges of the side panels. This effect may also be used to prevent or reduce rocking movement of the side panels if they have convexly curved under-edges.

#### INTRODUCTION TO THE DRAWINGS

15 The invention will now be described in more detail, by way of examples, with reference to the accompanying diagrammatic drawings, in which:-

#### IN THE DRAWINGS

FIGURE 1 is a side perspective view of an article of furniture constructed as a couch or chaise lounge;

20 FIGURE 2 shows an end view of the couch of figure 1 as seen from its higher end;

FIGURE 3 Is a perspective plan view of the couch after removal of a covering platen, to show details of a track and a wheel-carrying axle which can be reciprocated back and forth along the track;

FIGURE 4 is an end view of the couch of figure 3 and shows the wheel-carrying axle in a  
25 lowered position at which it will provide ground wheels for one end of the couch when it is lifted from its other end;

FIGURE 5 is a rear view of a counter providing refreshment bar and formed by standing an article of earlier figures on one side so that the face of one side panel rests close to the ground the opposite side panel provides a horizontal counter;

FIGURE 6 is a side view of an article of furniture constructed as a child's rocker which  
5 is easily disassembled to provide a compact assembly for transportation;

FIGURE 7 is a vertical section through the rocker of figure 6 taken on the line and in the direction of the arrows VII – VII in that figure parts of the rocker being cut-away to expose internal details of its construction; and,

FIGURE 8 is a plan view of the rocker of figure 6 as seen from above and after removal  
10 of a platen of elements which normally rest at opposite marginal edge-portions on the upper edges of respective side panels of the rocker, parts of wheel support mechanism being cut-away to expose internal details of its construction.

#### DESCRIPTION OF FIRST EMBODIMENT

An article of furniture providing a couch or chaise lounge is shown in figure 1 and is  
15 identified generally at 1. It has two upright and spaced rigid, wooden side panels 2 which are attached to one another by rigid tubes 3 shown in figure 2 and secured to the panels 2 by quick-released connectors (not shown). Such connectors are conveniently screw connectors but may be of any type well-known in the art of manually-operable quick-release connectors and which are capable of handling the loads involved. The  
20 panels 2 are flat and planar and as shown in figure 3, have upper curved edges 4 of concave shape, and convexly curved lower edges 5 providing rockers beneath the couch. A thick soft resilient foamed rubber or plastics strip 6 extends along the upper edge of each of the panels 2 as clearly shown in figure 4. The panels 2 may be made of metal or plastics if preferred. The under edges of the panels are sheathed with harder rubber. As

shown in figure 4, the rubber on the upper and lower edges of the panels 2 extends laterally beyond the side faces of the panels.

Providing the upper surface of the couch is a platen 7, shown in figures 1 and 2, made from spaced parallel bamboo elements 8 extending between opposite sides of the platen. 5 The elements 8 are held together by flexible wires (not shown) passing diametrically through the elements 8 and through shorter spacer lengths 9, also made from bamboo, and of lesser diameter and which are respectively located between the elements 8. As is apparent from figure 2, the marginal side edges of the platen respectively rest on and overlap the strips 6. The weight and flexibility of the platen holds it securely in position 10 on the concave upper edges of the panels 2 and the strips 6 provide non-slip surfaces beneath the platen 7. To help locate it firmly in position, even when it is partially gathered at a particular position on the panels 2.

Each panel 2 has a face plate 10 attached to its inside surface as shown in figures 3 and 4 to provide with its upper edge a curved track 11 extending parallel to and beneath the 15 intermediate portion of the platen 7 and conforming in shape to the strips. If preferred, a rail providing the track 11 may be rigidly attached to the panel 2. An axle 12, shown in figures 3 and 4, extends perpendicularly between the two tracks 11 as shown in figure 3, and is mounted on small rollers 13 located at its ends and which run along the tracks 11. Inwardly of the rollers 13 the axle carries two spaced wheels 14 of larger diameter than 20 the rollers 13 and which have resiliently tyred rims 15. These may be interchanged with tyred rims of a different resilience and/or diameter. The diameters of the wheels 14 are sufficiently large for their rims to bear against the undersides of the bamboo elements of the platen when the axle is driven back-and-forth along the parallel tracks 11 by a drive mechanism (not shown). Such a mechanism may comprise a motor-drive belt loop 25 connected by a lazy flexible tie to the axle 12 so that, as the belt loop is driven, the axle is reciprocated back and forth along the track 11. Other driving mechanisms, such as an endless reversing leadscrew or a linear actuator, may also be used to reciprocate the axle 12 back and forth beneath the platen 7. The axle's movement causes the wheels 14 to run along the undersides of the elements 8 of the platen 7 in succession in response to the

wheels passing beneath them, and this movement is felt by the body of a person or persons reclining on the couch, to provide a pleasant percussive massaging effect.

A blind upright bayonet slot 17 is provided beneath each track 11 towards one end, as shown in outline in figures 3 and 4. The rollers 13 are prevented from entering the slot 17 when the axle 12 is being reciprocated back and forth. However a gate (not shown) at the entrance to each slot can be moved to allow the rollers 13 at the ends of the axle to enter the slots 17 and then be moved manually to positions at which each locates in a laterally-projecting blind end 18 to each slot 17. When so located, the rims of the wheels 14 project beneath the under edges 5 of the panels 2 and run on the ground when the opposite end of the couch is lifted slightly. The wheels 14 can thus be used to carry most of the weight of the couch and allow it to be rolled easily from place to place.

#### DISASSEMBLY OF FIRST EMBODIMENT

To dismantle the couch, the platen 7 is rolled-up and the tubes 3 are disconnected from the panels 2 by way of the quick-release connectors. The axle 12 and its associated drive mechanism are removed from their operating positions. The tubes 3 and axle 12 can then be inserted into the rolled-up platen and the two panels 2 arranged face-to-face beside the platen roll to provide a compact unit for transportation to and from a site of use.

From the above detailed description of the drawings it will be appreciated that I have devised an article of furniture capable of serving as a comfortable rocking couch or chaise lounge which is cool and well-ventilated by virtue of the slots in the bamboo platen 7, and is versatile in use. It may also be suspended slightly aboveground level by means of rope or chains connected to the protruding ends of rods (not shown) passed through the interiors of the tubes 3 and projecting from registering openings 30 provided in the panels 2 (see figure 3) so that the couch or chaise lounge can be swung back and forth with minimal ground clearance.

## DESCRIPTION OF SECOND EMBODIMENT

Figure 5 shows the basic article of furniture used in the first-embodiment of the invention, being used for a totally different purpose, namely, to provide a refreshment bar. For convenience the parts of the article bear the same reference numerals as used in earlier figures, but the numerals are numbered from "50" upwards. Thus panel 2 of the earlier figures is referred to as panel 52 in figure 5. This mode of use is achieved by standing the parts of the article shown in figure 3 on one side so that the exposed face of one of the panels 52 rests on the laterally protruding edges of the foam rubber strip 56 and the sheathing 29. The face of the panel 52 is thus face down but slightly spaced above the ground. The other panel 52 is then horizontal and about one metre above floor level to provide a service counter for a drinks bar. The strip 56 provides a soft edge to the back of the bar where a bar-tender would be standing and the platen 57 is placed against the convex sides of the panels 52 so that the bamboo elements 58 and 59 are upright and the platen 57 wraps around and covers the convex the front of the bar. The tubes 53 extending between the panels 52 to attach them to one another, have their interiors accessible from outside the panels 52, and this allows long rods (not shown) to be inserted vertically into them when the article of furniture is in the bar mode shown in figure 5. Short additional lengths of bamboo tubing 24 are then placed over the protruding upper end-portions of the long rods and rest at their lower ends on the upper panel 52. Their lengths are so chosen that their upper ends are at the same height as the top edge of the platen 57. Flat wooden trays 21 shaped to conform to parts of the upper edge of the bamboo platen 57, are then placed over the long rods where they rest stably by being supported partly on the upper edge of the platen 57 and partly by stops (not shown) provided on the upper ends of the tubes 24. The trays 21 then occupy the positions shown in figure 5, and serve as additional counters on which glasses can be stood. Bamboo cylinders 23 may be inserted onto the upper ends of the long rods so that they rest at their lower ends on the trays 21. Spigots (not shown) can then be inserted into the upper ends of the bamboo tubes 23 to hold in place a horizontal sun-screen (not shown) covering the bar above head height.

## DESCRIPTION OF THIRD EMBODIMENT

Figure 6 shows an article in the form of a child's rocker 101 made from two, similarly-shaped, spaced, rigid, parallel, side panels 102 having convexly curved under edges providing rockers 103. The rockers 103 are sheathed with strips 104 of foamed rubber or plastics to provide a cushioning effect and to reduce the risk of injury to a child who may place a finger under the rocker 103 while in motion. The upper edge of each panel 102 is also covered with a similar foam strip 106 over which is draped a platen 107 of spaced rigid elements such as spaced parallel hard wooden slates 108. The slats 108 are selected with due regard to their material, diameter, length and other characteristics so that each tube gives out a distinct musical note when struck with a hammer. The tubes 108 overlap the panels 102 at their end-portions and are suitably arranged to provide a musical scale.

The panels 102 each have attached to them two, readily disconnectable connectors provided by socket pieces 110 into which can be slotted or screwed the opposite end portions of two parallel tubular bars 111 made from wood, metal or plastics. These serve to hold the two panels 102 in spaced parallel relationship and can be quickly disconnected when the article is to be disassembled in order to be compactly stored or transported elsewhere.

The bars 111 serve as mounts for wheel support mechanisms which include arms 115 which are arranged in pairs respectively associated with the two bars 111, each pair supporting an axle 119 parallel to the bars 111 and having wheels 114 at its opposite ends. The mounting mechanism of each arm 115 will now be described with reference to figures 7 and 8 in which parts have been broken away to expose working details of the mechanism.

Each tubular bar 111 is provided at its centre with a diametrically-extending metal pin 116 opposite ends of which protrude a short distance from opposite sides of the bar 111. One protruding end of the pin 116 is formed as a domed head 117 on the bar 111, and the other protruding end is formed as a stub 118.



A steel coil spring 120 encircles the intermediate portion of the bar 111 and has opposite end-portions wound oppositely-handedly and joined at the centre by a return bend 121 located in the same diametric plane as the pin 116. The curvature of the return bend 121 is such that rotational movement of the spring 120 in one direction around the axis of the bar 111 is limited by the capture of the stub 118 in the loop of the return bend 121. Rotational movement of the spring 120 in the opposite direction around the axis of the bar 111 can occur freely until the convex side of the return bend 121 engages and then resiliently rides over the domed head 117 of the pin 116 as shown in figure 8. The domed head 117 then provides a small resistance to reverse rotation of the spring 120 but this small resistance can be manually overcome when it is required to move the arms 115 from their wheel-stowage positions shown in figure 8 to their wheel-operating positions shown in figure 7.

The coil spring 120 has axially-extending terminal portions 122 which locate in slots (not shown) provided in plastics or metal radially flanged sleeves 124 encircling and rotatably mounted on the bar 111 at opposite ends of the spring 120. Stops (not shown) on the bar 111 hold the sleeves 124 in engagement with opposite ends of the spring 120. Each sleeve 124 provides an anchorage for a respective end of a wheel support arm 115 as shown in figure 8. A protective plastics sheathing tube 125 surrounds the spring 120 and its opposite ends are attached to the outsides of respective sleeves 124.

The wheel support arms 115 of each pair lie in the same radial plane of the tube 125, the associated sections of the coil spring 120 enable each arm to flex resiliently or allow the lower edges of the tyred wheels 114 to move upwardly beyond the soft rubber strip 104 when a larger than intended load is to be supported by the wheels 118 when in the position shown in figure 7. Holes formed in the free end-portions of the arms 115 have opposite end-portions of the axle 119 passing through them.

Manual rotational movement of the sheathing tube 125 about the axis of the bar 111 determines the angular positions of the associated arms 115 and thus the movement of the wheels 114 between the operating positions shown in figure 7, and the stowage

positions shown in figure 8. When in their operating positions, the arms 115 slope downwards beneath the end-portions of the panels 102 and make an angle of about 15° with the vertical plane containing the axis of the associated bar 111. The article of furniture is thus stably supported on the wheels 114

## 5 USE OF THIRD EMBODIMENT

The article described can be compactly transported when disassembled. The platen 107 can be rolled up, and the bars 111 can be readily disconnected, for example by unscrewing, from the threaded socket pieces 110. The panels 102 can then be placed face-to-face and arranged alongside the rolled-up platen 107, and the two bars 110 to  
10 which are attached the components of the wheel mounting mechanism, can be placed alongside them to provide a compact, assembly for transportation.

The article is easy to erect by a customer. The two bars 110 are connected at opposite ends rigidly to the two socket pieces 110 and the platen 107 is unrolled and may be draped over the strips 106 as shown in figure 6, or gathered in places if desired.

15 Elongated slots 60 shown in broken outline in figure 6 and formed in the raised ends of the panels 102, allow a variety of items to be passed between individual, spaced, slat elements 108 of the platen 107 to locate at their lower ends in the slots 60. These items may comprise the lower ends of parallel supports for a handle (not shown) extending between them and which can be used to assist pushing and rolling of the article along the  
20 ground, or to store the stems of hammers used to strike the individual elements of the platen 107 to enable it to be used as a xylophone. The slots 60 may also be used to accommodate support arms of a frame (not shown) used to hold an overhead shade or rain cover above the article.

The assembled article can be used in a variety of ways. When the wheels 114 are in their  
25 stowage positions shown in figure 8, the article may be used as a xylophone or as a piece of rocking furniture. By turning the sheathing tube 125 manually, the wheels 114 can be

moved to the positions shown in figure 7 at which they project beneath the level of the rockers 3 and are positioned nearer the ends of the article than the bars 111. They then support the weight of the article. These wheel positions are determined by the location of the stub 118 in the loop of the return bend 121. The article may then be rolled along the  
5 ground on its wheels and/or bounced up and down utilising the resilience of the support arms 115. Finally, if excessive weight is placed on the seat of the article provided by the platen 107, the end-sections of the coil spring 120 yield sufficiently for the arms 115 to turn slightly and transfer part of the weight of the article to be transferred from the wheels 114 to the rockers 103. The foam strip 103 provides resilience while rocking and  
10 reduces the risk of a child's hand or finger placed beneath the rocker from being pinched severely between the underside of the rocker and the ground.

If the article is to be used as a rocker, the wheels 114 are moved from their active position shown in figure 7 to their stowage position shown in figure 8. This is achieved by manually rotating the sheathing tubes 125 until the return bends 121 at the centres of  
15 the coil springs 120 snaps resiliently over the domed heads of the pins 116. The wheels 114 are then held in their stowage positions until the sheathing tubes are turned manually in the opposite direction to restore the wheels 114 to the positions at which they rest on the ground beneath the positions of the rockers 103, as shown in figure 7.

#### MODIFICATION TO THE FIRST AND THIRD EMBODIMENTS

20 It is to be understood that features incorporated into either of the first or third of the above described embodiments may also be incorporated into the third and first embodiment respectively. Thus the resilient legs and wheels of the third embodiment may be incorporated into the first embodiment, and the ability of the first embodiment to be pendantly supported to provide a swing which passes close to the ground, may be  
25 incorporated into the third embodiment. Also the slots incorporated into the panels 102 of the third embodiment and referenced 60, may also be incorporated into the panels 2 of the first embodiment to allow for example, a light frame to be temporarily positioned

above the platen to support a section of its length above at least one end portion of the couch to provide protection from an overhead sun.

In a further modification of the arrangement shown in figures 3 and 4, but not specifically illustrated, a pair of parallel axles 12 is provided, each axle being equipped  
5 with similar end rollers 13 and similar wheels 14 having resiliently tyred rims 15. The axles 12 are mounted above and towards opposite ends of a platform located between the side panels 2. A driving mechanism for producing back and forth reciprocation of the platform is connected to it. Each axle is mounted for vertical resilient movement on the platform and the wheels 14 extend beneath the platform. Two parallel upright bayonet  
10 slats 17 are provided on each track 11 and are spaced from another sufficiently to allow the platform to be lowered bodily from the position corresponding to that shown in figure 3 and at which the upper edges of the wheel tyres 15 engage the underside of the platen, to the position corresponding to that shown in figure 4 and at which the undersides of the wheel tyres 15 protrude beneath the rubber sheathing 29. This allows the chaise lounge  
15 or couch to be rolled along the ground on the wheels 14. The use of a platform in conjunction with two resiliently spring axles enable a smoother movement of the wheels 14 along the underside of the platen elements to occur despite uneven downward-loading of some of the elements as a result of uneven loading of the platen by the distributed weight of a person reclining on the platen.